

NEW CRETACEOUS FOSSILS FROM AN ARTESIAN WELL-BORING AT MOUNT LAUREL, N. J.

BY C. W. JOHNSON.

The following material was obtained by Mr. Lewis Woolman from the borings of an artesian well on the farm of Mrs. Samuel Shreeve, Mount Laurel, Burlington County, N. J. The well was put down on the 70 feet contour near the base of the southern slope of Mount Laurel. The following section, published by Mr. Woolman,<sup>1</sup> was given him by the contractor, Mr. Wm. C. Barr:—

Commenced in the bottom of a dug well at the depth of...		25 feet.		
Reddish-gray sand.....	31 feet =	56 feet.	} Matawan clay marls. } Cretaceous.	
Black clay.....	175 feet =	231 feet.		
A few <i>molluscan fossils</i> at about 100 feet.				
Numerous <i>mollusks</i> at 150 to 160 feet.				
Tough green clay.....	30 feet =	262 feet.		
Dark-bluish clay.....	42 feet =	304 feet.		
Gray sand, <i>water bearing</i> .....	2 feet =	306 feet.		
Stopped on a whitish clay.				
				} Sewell water horizon. }

Mr. Woolman states that: "The whitish clay on which this boring stopped is probably equivalent in horizon with certain alternating laminae of whitish clays and sands that were found near the bases of the wells at the Wenonah Hotel and at Sewell. Beneath these laminae, at the last two named localities, occur coarse sands and gravels with large pebbles, forming an open stratum from which an abundant and excellent supply of water is obtained. The water horizon reached at Mount Laurel may be considered as practically the same. We have designated this as the Sewell water horizon. Its position is at the base of the Matawan clay marls and the top of the Raritan plastic clay series, and has a thickness, if we may judge by the boring at Sewell, of at least forty feet."

A comparison of these fossils with those obtained by the writer for the Museum of the Wagner Free Institute of Science from the banks of the Chattahoochie River, below Eufaula, Alabama, shows that this

<sup>1</sup> Report on Artesian Wells in New Jersey, by Lewis Woolman, from the Geol. Survey of N. J. Ann. Rept. for 1897, p. 262.

fossiliferous stratum is equivalent to the Ripley bed of Alabama, Mississippi and Texas, which is also represented in North Carolina, especially at Snow Hill, Greene County.<sup>2</sup>

The following is a list of fossils obtained from the well:—

<i>Ostrea plumosa</i> Morton.	<i>Corbula foulkei</i> Lea.
<i>Exogyra costata</i> Say.	<i>Dentalium</i> sp.?
<i>Anomia tellinoides</i> Morton.	<i>Cinulia costata</i> n. sp.
<i>Camptonectes burlingtonensis</i> Gabb.	<i>Pyrifusus subdensatus</i> Conrad.
<i>Pinna</i> sp.?	<i>Alaria rostrata</i> Gabb.
<i>Pteria</i> sp.?	<i>Auchura</i> sp. ? (expansion of outer lip only).
<i>Trigoniarea cuneata</i> Gabb.	<i>Auchura?</i> <i>pergracilis</i> n. sp.
<i>Pectunculus</i> sp.?	<i>Pugnelus deusatus</i> Conrad.
<i>Nucula pererassa</i> Conrad.	<i>Lunatia halli</i> Gabb.
<i>Nucula</i> sp.?	<i>Trichotropis cancellaria</i> Conrad.
<i>Leda</i> sp.?	<i>Scalaria sillimani</i> Morton.
<i>Trigonia thoracica</i> Morton.	<i>Turritella vertebroides</i> Morton.
<i>Lucina cretacea</i> Conrad.	<i>Turritella quadrilira</i> n. sp.
<i>Cardium enfaulense</i> Conrad.	<i>Tuba(?) reticulata</i> n. sp.
<i>Veniella couradi</i> Morton.	<i>Placentuceras placentata</i> Dekay.
<i>Veleda lintea</i> Conrad.	<i>Hammulus squamosus</i> Gabb.
<i>Leptosolen biplicata</i> Conrad.	<i>Platytrachus speciosus</i> Gabb & Horn.
<i>Legumen</i> sp.?	
<i>Corbula crassiplicata</i> Gabb.	

*Cinulia costata* n. sp. (fig. 1).

*Cinulia costata* Johnson, n. sp. Annual Rept. Geol. Sur. N. J., 1897, page 264, name only.

Shell with four whorls, spire prominent, body whorl with from 12 to 13 revolving grooves, which form an equal number of smooth, flat, revolving costæ; these average about double the width of the grooves. In one specimen the third and fifth costæ from the suture are almost twice the width of the others, and the two lower costæ divided by a minute, impressed line. The first spiral whorl has six, and the second five, revolving grooves. Apical whorl smooth, suture deeply impressed. Aperture narrow, oblique, lip broad, thick and crenulated on the inner margin with eight small teeth-like projections, and extend-

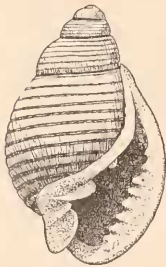


Fig. 1.

<sup>2</sup>Conrad, in Kerr's Geology of North Carolina, Appendix, Vol. I, 1875.

ing to the suture where it joins the callus of the peristome, which is continuous to the base of the columella; base with two oblique folds, above which is a prominent fold or plate extending at almost right angles to the columella; between this and the posterior angle of the aperture is a small, tooth-like projection.

Alt. 4, diam.  $2\frac{1}{2}$  mill.

Three adults and two juvenile specimens in the collection of the Academy of Natural Sciences of Philadelphia.

*Anchura?* *pergracilis* n. sp. (fig. 2).

*Anchura* sp. ? (young). Annual Rept. Geol. Survey N. J., 1897, page 264.

Shell fusiform, whorls convex, the body whorl with about 18 and the spiral whorls with 15 equidistant, flexuous, longitudinal ribs; numerous fine revolving lines, more prominent between the ribs, and somewhat obsolete on the angles of the ribs, cover the entire shell; suture deeply impressed. The length of the largest specimen (including the two apical whorls, which are wanting), is about 20 mill.

I would hesitate in describing this young shell if it were possible to determine the *shells* of this group from the figures and description of the casts that have already been described. This species can always be determined, but in identifying casts when the external characters are unknown, there is always more or less doubt, even when one has access to the types.



Fig. 2.

*Anchura* sp. ?

This species is represented only by a fragment, the expanded portion of the outer lip. This resembles somewhat that of *Anchura abrupta* Conrad (Jour. Acad. Natural Sciences, 2d series, IV, 284, pl. 47, fig. 1), but has on the lower or anterior edge a small projection or angle near the base (fig. 3), but no downward projection at the end. It probably represents a new species. Length of specimen,

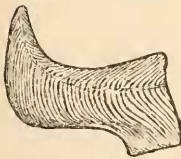


Fig. 3.

18 mill.

*Turritella* *quadrilira* n. sp.

*Turritella quadrilira* Johnson, n. sp. Annual Rept. Geol. Sur. N. J., 1897, page 264, name only.

This species closely resembles the *Turritella trilira* Conrad of the Ripley bed, but is at once distinguished by having *four* instead of three *equidistant* revolving liræ; it also differs in being perfectly

smooth between the costæ, while the lens shows the interstices of *T. trilira* to have numerous, minute, raised revolving lines. The specimens are all greatly broken, the largest, showing five whorls, is 14 mill. in length, but the fragments indicate that it probably attains the size of the average *T. trilira*, about 50 mill.

*Tuba* ? *reticulata* n. sp.

*Tuba* ? *reticulata* Johnson, n. sp. Annual Rept. Geol. Sur. N. J., 1897, page 264, name only.

Whorls very convex, with four equidistant, revolving, raised lines, which are crossed by equidistant longitudinal ribs of a corresponding size, which form equal, quadrate interstices, except below the suture where the longitudinal ribs become obsolete. At the junction of the two series of raised lines are small tubercles throughout the entire shell. Owing to the imperfect apertures of the five specimens, its generic position remains doubtful, but its distinct sculpture will distinguish the species. Length of the largest specimens, 6 mill.; probably attains the length of about 10 mill.

*Trigonia thoracica* Morton.

*Trigonia eufalensis* Gabb.

There seems to be considerable confusion regarding these forms. That *T. eufalensis* Gabb is only the young of *T. thoracica* Morton can be readily proven by the large suite collected by the writer at Eufaula and Prairie Bluff, Alabama. Morton's type came from the latter locality. The species recorded from Reeve's clay bank near Lenola, N. J., is *T. thoracica*, not *T. mortoni* Whitfield.